

## LIBERTY MOTOR AN ALL 'ROUND ENGINE

Gave De Havilland Fighting Planes Speed of 130 Miles an Hour.

By some means or other which engineers are unable to fathom the understanding is rather general that the Liberty motor proved especially valuable as motive power for daylight bombing planes and was limited to that purpose. The truth about this great war engine, a specimen of which is on view in the Packard Motor Car Company of New York, is that for fighting, bombing, observation and other military requirements it was the greatest all around aviation engine that appeared on the western front.

In the De Havilland fighting planes, in which it appeared in greatest numbers during the last two months of the war, the Liberty engine developed a speed of 130 miles an hour. In planes especially fashioned for daylight bombing of enemy lines and stores, and carrying full military load of crew and armament and missiles, it went skyhooking through the air at 125 miles an hour.

### Too Heavy for One Seater.

The fact is, say the American aircraft engineers, there was only one type of service plane to which the Liberty was not adaptable, and that was the one seater fighter. It was too heavy for that, or at least for those one seater fighting planes that had been developed. But in the De Havilland it went over the German lines for the American forces for the first time in August, 1918, just about a year from the day the first Liberty flew in tests at Mineola, L. I. A few weeks later squadrons of Liberty motored planes preceded Pershing's doughboys and hovered over them during the quick operation that is known as the stuffing out of the St. Mihiel salient.

What was coming in the way of a Liberty motored fighter just when the armistice was signed still is partly a secret, but the part that is known included this information: In January of 1917 the French aviation mission to America, composed of a dozen expert pilots, all of them specialists in the fine arts of plane design, all of them veterans of from six to thirty months of service in the great war, arrived at the Packard plant in Detroit. Special facilities were created for their work, and a corps of Packard's best craftsmen, trained body builders in time of peace, marshalled to execute designs under their guidance.

### Le Pere Breaks Record.

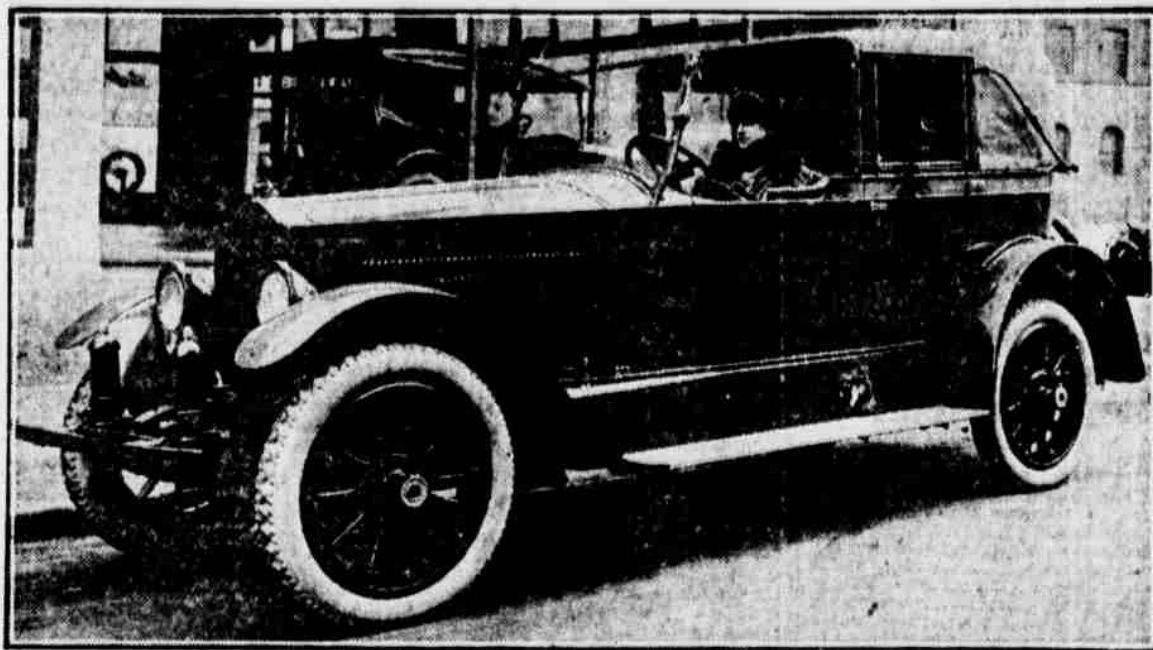
By midsummer the French mission and the Packard craftsmen had turned out a beautiful two seater fighting plane, called the Le Pere, after its principle designer, Captain Le Pere of the French army. This plane was built especially for the Liberty motor, its every detail designed to bring out the full advantages of the great engine. In tests it proved the fastest two seater fighter ever built. Two of these were on the ocean, bound for the front when the war ended, and twenty-five more, gleaming in their camouflage paint, were undergoing finishing touches at the Packard plant.

What the plane built precisely for the Liberty motor would have revealed in the way of fighting must remain, like Foch's plan of the great battle which he says he still had to fight, a matter for conjecture. Certain it is that the Frenchmen, who had flown and fought nearly everything that the war had brought out, celebrated their great victory with just a touch of feeling that the Germans in quitting had cheated them out of a chance to spring the biggest surprise in aerial warfare.

### FIVE CADILLAC IMPROVEMENTS.

Reviewing the development of the motor car the Cadillac Motor Car Company refers to five fundamental improvements in which it leads the field, namely: Adoption of Johnson pump system; standardization of parts sufficiently to permit interchangeability without fitting; the electrical system of starting and lighting; the V type high speed, high efficiency engine; and thermodynamic control of circulating cooling medium.

## Six Passenger Holbrook Packard Cabriolet.



## MOTO-METER IS TROUBLE DETECTOR

Flashes Signal to Driver When Temperature of Engine Gets Excessive.

Locating trouble in an overheated engine has been reduced to a few simple directions in a booklet just issued by the Moto-Meter Company of Long Island City, makers of the little instrument on the radiator cap, which indicates the temperature of the motor.

The booklet, which is titled "What Every Car Owner Should Know," presents various causes of overheating with their remedies in convenient form for the car owner. A very common cause of overheating, says the booklet, is a clogged oil strainer. This oil strainer surrounds the suction pipe of the oil pump to prevent sediment from reaching the lubricated parts. When the strainer becomes clogged the oil does



HARRISON H. BOYCE, General Manager of the Moto Meter Company, Long Island City.

not pass through, and as a result lubricated parts run dry and the motor begins to heat from the friction.

When any part of the engine is heated the temperature of the water in the cooling system also rises. This raises the meter, for the overheating of the water may be detected immediately, and this is just what the moto-meter is intended to do.

### Red Signal Flashes.

While apparently it is nothing more than an instrument to indicate the temperature of the water in the cooling system, in reality it is a "trouble detector" for the whole car. For the instant something goes wrong in the engine some part begins to heat up, the temperature of the water rises and the red column in the little instrument on the radiator cap shoots up to "danger."

Another common cause of overheating is worn piston rings. Part of the gas vapor passes down through the loose piston rings, condenses and mixes with the oil in the crank case. The oil thus thinned loses its lubricating quality, the rubbing parts are "starved," a friction starts and an overheated engine is the result.

Retard spark, broken oil pump, improper carburetor adjustment, loose or broken belt fan, clogged muffler, leaking radiator or water connections, clogged radiator tubes and loose oil pipe connections are all common causes of overheating. Wherever lubrication fails to function properly, then friction rises and heat is generated. In the case of the retarded spark the explosion occurs when the gases are in contact with a larger area of the cylinder walls, consequently a larger area in the water jacket is heated.

### Easy for Driver to See.

But all these troubles are instantly noted by the moto-meter and the danger signal flashed to the driver. The instrument mounted on the radiator cap is directly in line with the driver's eye, so that he cannot miss seeing the red column when it changes position. All these troubles can be prevented from doing any permanent harm to the motor by remedying them immediately if the moto-meter is heeded.

On the other hand, a motor can run too cool. Motors are all made to operate most efficiently and economically at a temperature always approaching the boiling point, but never reaching it. Especially is this temperature needed to evaporize the gasoline, and the lower the grade of gasoline the higher the heat is needed to vaporize it. In cold weather when an engine is running cold the gasoline does not vaporize properly, causing back firing, lack of flexibility, loss of power and poor gasoline mileage.

The average motorist will blame the carburetor when these conditions are apparent, when the intelligent use of a radiator cover would eliminate the trouble, produce maximum gasoline mileage, cause the engine to operate with proper flexibility and to deliver its full power.

## PIERCE-ARROW LINE FOR 1919 COMPLETE

Wide Variety of Models Meets Every Desire of Exacting Purchaser.

The owner of a Pierce-Arrow passenger car never need turn to the custom body maker in order to satisfy his desire for individuality. This truth is simply demonstrated by the exhibition staged this week at the Automobile Show by the Harrods Motor Car Company, local representatives of the Pierce-Arrow Motor Car Company.

A variety of body styles, themselves susceptible of decided changes which are optional, houses the now famous Dual Valve Six engine which was announced last fall by the Pierce-Arrow Company. "The fact that the Pierce-Arrow possesses a truly remarkable engine in the new Dual Valve should not obscure the qualities which for many years have given Pierce-Arrow preeminence in the motoring world," said Clarence Cady, "Bethlehem over the ability of the double valve engine to deliver economically 40 per cent more horse-power, resulting in far greater flexibility, is apt to blind one to the car's many other virtues."

Prominent among these virtues is the individuality attained through the wide diversity of body styles, which suit every whim or purpose.

A Pierce-Arrow owner can choose from among the numerous closed body styles a type that he almost may be sure will not be duplicated in his home city. Thus to all practical intents he has a custom made body at a moderate price. Furthermore, such a body being a standard design, greatly enhances the resale value of the car.

Indicative of the variety of types that is offered the Pierce-Arrow owner may be cited the suburban body. This may be had in flat or domed roof, a difference that markedly changes the general appearance. Similarly the many other Pierce-Arrow body styles have distinguishing features that are optional.

Of course, individuality always may be expressed through the color scheme and interior decorations of the car, of which there is the widest range of choice. The most popular Pierce-Arrow model, the 48 horse-power one, is on exhibition at the show.

### 4,000 MOTOR CARS IN JAPAN.

There are 4,000 automobiles in Japan, according to Y. Hyon Yamashita, business man and banker of that country now here on business. The population is 45,000,000, and the small number of machines is attributed to the fact that the country has no good roads.

## MOTOR BUSINESS ON SOUND BASIS

Sales Manager Voorhis of Nash Co. Says Industry Is Standardized.

"The successful automobile dealer of the future must conduct his business along recognized lines of high grade merchandising," says C. B. Voorhis, general sales manager of the Nash Motors Company, himself one of the best known quality merchandisers in the industry. "In the early days of the industry and up until our entry into the war, automobiles were, generally speaking, purchased and not sold," said Mr. Voorhis.

"There was generally a greater demand than the various factories working at capacity could supply. This made comparatively simple the selling problem of the dealer. By the time he had taken care of those buyers who came into his showroom, his circle of friends, and had scratched roughly the high spots in his territory, his entire allotment was sold.

"What I am trying to convey is that intensive selling and service methods

### Sells the Nash



F. C. STOWERS, Vice-president Kaufmann-Stowers Company, Inc., which is exhibiting the Nash line of cars in the Sixty-ninth Regiment Armory.

such as are standard in highly competitive businesses were seldom found necessary by the dealer in pre-war days. "I believe, however, that this period of loosely organized and haphazard effort has passed for all time. And in a great measure this is largely the result of conditions brought about by the war. "During the war period those dealers who were not good business men encountered rough sledding. The production of the industry was diverted to war purposes. The number of cars available to dealers was cut to the bone. "Consequently dealers found most careful management necessary to preserve their business. Overhead had to be kept down and every business practice then in use was carefully scrutinized to determine if it were really the most efficient.

"Those dealers who neglected to do these things went out of business. This is proved by the fact that before the war there were more than 35,000 dealers throughout the country and that this number was reduced to some thousands by the time the armistice was signed.

"So to take advantage of the good volume of business now in sight with a greater per capita wealth existing than ever before in the history of the country, there are left only those dealers who have proved their caliber as high grade business men by coming through the troublous war period in good shape.

"While there is no doubt in my mind that the demand for cars in the immediate future will be greater than ever before," said Mr. Voorhis, "yet competition will also be keener. As much as we knew before about volume production, the war taught us many valuable lessons along this line. Factories speeded up to war time efficiency will soon be turning out quantities of cars that will be infinitely greater than those of pre-war days.

"The sound business practices adopted by those dealers who survived the war period will still be necessary if dealers handle this volume production at a profit to themselves.

"In other words, from now on the automobile dealer has got some mighty hard work ahead of him, but if he measures up to standard, his opportunities for profits were never greater."

### MEMORINEE TRUCKS AT SHOW.

Two Models Will Be Exhibited in Armory in Space T-5.

Daniel Schubert, treasurer and sales manager, announced yesterday that the Memominee Motor Truck Company of New York, Inc., plans to exhibit two of its popular trucks in the truck and commercial car section of the nineteenth annual New York Automobile Show, to be held in the Sixty-ninth Regiment Armory and Madison Square Garden February 10 to 15.

The Memominee exhibit will be in space T-5 in the Sixty-ninth Regiment Armory. The company will show a two-ton and a three and one-half ton model. In addition, because of the limited space available at the main exposition, a supplementary show will be held in the company's show rooms, 209 Amsterdam avenue, where a full line consisting of 1, 1½, 2, 2½ and 3 ton models will be on view.

Mr. Schubert reports he finds a lively interest in the show is being displayed by the public. He predicts it will stimulate truck sales in the New York district more than any previous show.

### NEW HAYNES IS DISTINCTIVE.

Has Refined Lines, Rich Body and Rugged Mechanism.

"Motordom sees a new pattern in the straight, graceful lines that characterize the up to date series Haynes car," says E. M. Headlighton of the Haynes Automobile Company, 1715 Broadway. "This is a season of rich simplicity and the buying tendency is for automobiles possessing refinements of design and body appointments. Ruggedness of mechanism is also demanded to make the motor car the most efficient and practical carrier. The Haynes touring car is a new style motor car, distinctly

beautiful and carries comfortably seven passengers. Wire wheels are also popular because they reduce tire wear and tend to make for economy of operation, besides being good looking."

**MAXWELL ROAD RECORDS STAND.** Maxwell stock passenger cars held practically every intercity road record in the United States. The most sensational record of this nature captured by Maxwell was a test of 2,000 miles of continuous running last year, when Ray McNamara, road engineer, beat the Lark, fastest passenger train between Los Angeles and San Francisco for nine straight nights. The run is 410 miles each way. The stock car was driven to New York city after the run and sustained no delay because of mechanical mishap. The Maxwell runs are made by McNamara to test the abilities of Maxwell construction.



## The POERTNER MOTOR CAR CO., INC.

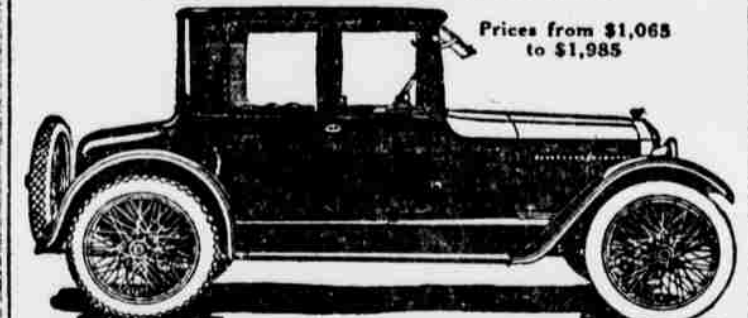
Broadway at 56th St.

Offers a New Product of the General Motors Corporation

## Scripps-Booth

A new scientific light weight chassis with a six-cylinder valve-in-the-head motor. It embodies four important features. (1) A speed of sixty miles an hour. (2) Twenty miles on a gallon of gasoline. (3) Climbs Abbey Hill carrying three passengers at a speed of better than thirty miles an hour. (4) Its light weight assures long life of tires.

Exclusive body types. Sedans, Coupes, Roadsters, Touring and Sport models. Fours and sixes. Really worth your while to call and see them.



Prices from \$1,065 to \$1,985

On Display at Exhibition Hall, Madison Square Garden.

# The Show's Only New Car

Don't Fail to See and Ride In It—Sells \$1395

## The Essex—Is Now Ready

The most interesting exhibit at all of the automobile shows this year is the only new car—the Essex.

Its coming has been looked forward to for more than a year. And so when the first showing was announced on January 16 every Essex sales room was crowded by motorists who wanted to see the car about which they had heard so much.

Thousands have since ridden in it.

Note the praising words they have for it. It combines the wanted qualities of both the light weight cheap car which appeals because of its low cost and economy of operation with the endurance, performance, elegance and easy riding qualities of the large costly car. It does this in a way that no other car has ever done.

## You Should Not Only See It— You Should Ride in the Essex

No sensational claims are made for the Essex, except those that are made by the thousands who have learned to know its qualities.

As you view the various exhibits at the automobile shows you will be reminded of the cars you know intimately from having seen them on the streets. A few changes in body designs, perhaps, but nothing of importance mechanically, has been produced during the past year.

The Essex, therefore, is the distinctive car of the year.

It is light in weight. It has all the qualities that make the light cheap car attractive. But it also has the easy riding qualities, and the performance, the long endurance and the refinement of the large and costly cars.

It has poise and will retain its rigidity throughout long hard service.

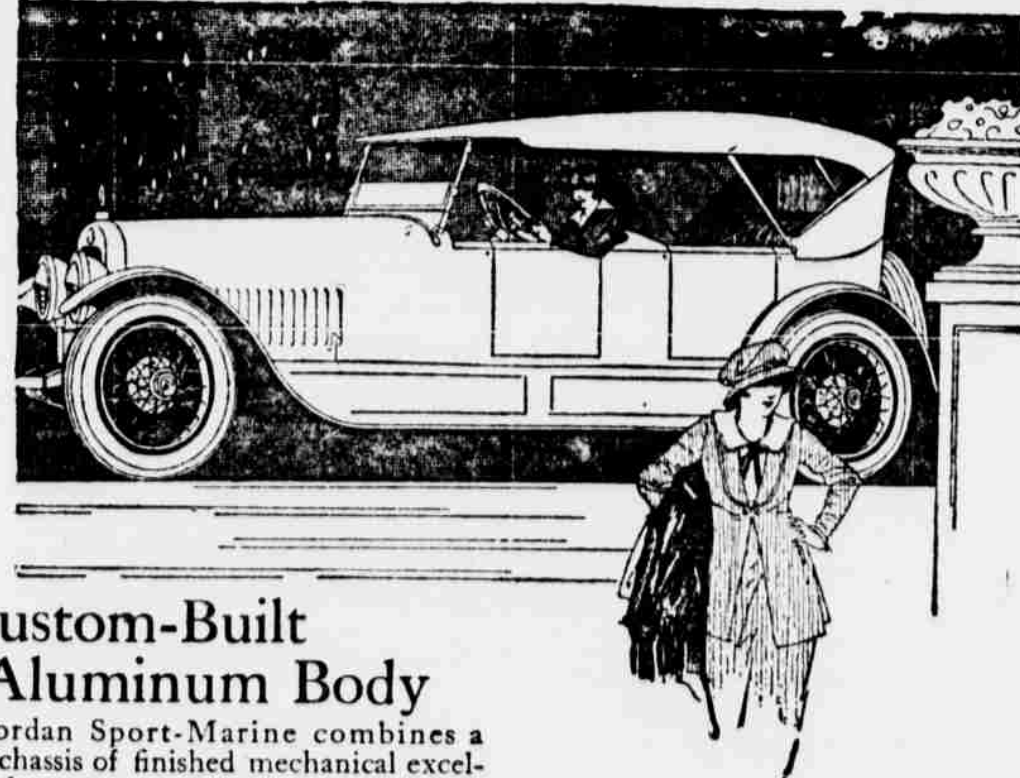
These are things which any observer will immediately notice. And that is why instead of advertising the claims as is usually done, we merely ask you to come see and ride in the Essex.



Not Room for It and the Hudson on the Main Floor of Madison Square Garden, They Are Given the Largest Space in the Building, in the Concert Hall on the Second Floor

HUDSON MOTOR CAR COMPANY of NEW YORK, Inc. Broadway at 61st Street, Circle Building

# JORDAN



## A Custom-Built All-Aluminum Body

The Jordan Sport-Marine combines a standard chassis of finished mechanical excellence with a completely equipped, custom-built, all-aluminum, bevel-edged body.

It is fifty pounds lighter. Long and low. Has wide, square, easy-to-enter doors. Is free from rumbles, ripples and rust.

Beautifully polished wood for the interior paneling. Special hand-buffed leather for the upholstery. Distinctive tonneau rug. Rim wind clock. Tonneau light.

Macbeth lenses. Sport windshield with a rakish slant. Tailored top. Curtains that open with the doors. Moto-Meter.

You may choose either Briarcliff green or Liberty blue for the finish. Either is good.

The Sport-Marine turns easily in crowded traffic. It drives with comfort. No fatigue.

The Sport-Marine is on exhibition at the Show as well as in our salesrooms

McCURDY-BRAINARD CO., Inc.

1895 Broadway, at 63d Street

Telephone Columbus 6812

JORDAN MOTOR CAR COMPANY, CLEVELAND, OHIO